

Remarks

Applicants acknowledge receipt of an Advisory Action dated January 23, 2003. In this response, Applicants have added claims 22 and 23. Support for these amendments may be found in paragraph [0034] of the application. Following entry of these amendments, claims 1-5, 7, 8, 10-12, 14-16 and 18-20 are pending in the application.

Reconsideration of the present application is respectfully requested in view of the foregoing amendments and the following remarks.

Rejections Under 35 U.S.C. §112, 2nd paragraph

In the Advisory Action, the PTO indicated that claim 11 "remains rejected under 112, second paragraph, (see Office action sent 12/5/01) since the drawings still do not show the claimed subject matter". This statement of rejection appears to be incorrect, and Applicants respectfully request clarification in view of the following comments.

In the Office Action dated December 5, 2001, the PTO rejected claim 11 under 35 U.S.C. §112, 2nd paragraph and stated "[a]s regards claim 11, the claimed subject matter of 'the flat tubes are beaded tubes, with a bead running parallel to the tube longitudinal axis' is not supported in the disclosure." This is the only statement regarding claim 11 under the heading "Claim Rejections – 35 U.S.C. §112". Applicants note that, although this rejection appears with rejections under 35 U.S.C. §112, 2nd paragraph, the rejection of claim 11 seems to be based on the written description requirement of 35 U.S.C. §112, 1st paragraph.

Applicants responded to this rejection in a paper filed May 29, 2002. In this paper, Applicants stated: "[w]ith regard to claim 11, Applicants note that the phrase 'the flat tubes are beaded tubes, with a bead running parallel to the tube longitudinal axis,' was present in claim 11 in the present application as filed. In this response, the specification has been amended to include this subject matter."

In the Office Action dated August 23, 2002, the Office Action summary indicated that claim 11 stood rejected, despite the fact that the Office Action included no rejection of claim 11.

In a response filed December 23, 2002, Applicants requested clarification of the status of claim 11, and the PTO responded, in the Advisory Action dated January 23, 2003 with the statement set forth above.

In view of the foregoing, Applicants submit that they have fully replied to the rejection of claim 11 under 35 U.S.C. §112 set forth in the Office Action dated December 5, 2001. If the PTO intends to reject claim 11 on a new basis, Applicants respectfully request that the PTO set forth the rejection with particularity in the next communication so that Applicants can prepare and submit a substantive response.

Rejections Under 35 U.S.C. §103

On page 2 of the Office Action dated August 23, 2002, the PTO has rejected claims 1-5, 7, 8, 12, 14-16 and 19-20 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,070,616 to Beck *et al.* to (hereafter "Beck") in view of U.S. Patent 4,470,452 to Rhodes (hereafter "Rhodes") and U.S. Patent 6,321,835 to Damsohn *et al.* (hereafter "Damsohn"). In addition, on page 4 of that Office Action, the PTO has rejected claims 10 and 18 under 35 U.S.C. §103(a) as being unpatentable over Beck, Rhodes and Damsohn in further view of JP 359125395A to Imai Shuji (hereafter "Imai"). The PTO has indicated, in the Advisory Action dated January 23, 2003, that it would maintain these rejections. Applicants respectfully traverse the rejections for the reasons set forth below.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 USPQ 580 (CCPA 1974). See MPEP §2143.03. In the response dated May 29, 2002, Applicants amended claim 1. The primary reference cited by the PTO, Beck, fails to disclose or fairly suggest a heat exchanger for a motor vehicle "(v) **wherein the ratio of**

the distance between the first flat face and the second flat face of the vortex generator rows in the direction of the tube longitudinal axis

to the height of the vortex generators is approximately 10 to 30"

as recited in amended claim 1. Further, none of the secondary references, e.g. Rhodes, Damsohn and/or Imai, taken either alone or in fair combination with Beck, resolves this basic deficiency.

The PTO asserts, both at lines 9-11 on page 3 of the Office Action dated August 23, 2002 and in the Advisory Action, that Figure 6 of Rhodes discloses that a ratio between the vortex generator row spacing between the first flat surface (120) and the second flat surface (126), with respect to the height of the vortex generator is about 7. Applicants respectfully disagree with the PTO's assertion for at least two reasons. First, Rhodes simply doesn't disclose any row spacing in the longitudinal direction, and second, even if such spacing were shown in the drawings, it is inappropriate for the PTO to assume that the patent drawings are to scale in deriving a ratio solely from measurements taken on the drawings. The law is clear that patent drawings are normally assumed to not be to scale, unless stated explicitly in the disclosure.

As to the first point, it appears as though the PTO may have misinterpreted the drawings in the Rhodes reference. As can be seen in the *lateral* cross-sectional view of Figure 5 of Rhodes, the flow diverting members 152 are arranged directly opposite one another, i.e., not displaced in the longitudinal direction. The figure does not depict any *longitudinal* offset of the diverting members, e.g. offset along the *longitudinal* axis of the tube. This is also the case in Figure 6, when one recognizes that, as shown in Figure 5, different numbers of flow diverting members are present on the top surface of the tube as compared to the lower surface. Consequently, the section which is depicted in Figure 6 does not show that a gap is present between the first and second rows of the vortex generators, and Figure 6 of Rhodes cannot disclose the relationship between the distance between the first flat face of the vortex generator and the second flat face of the vortex generator rows in the direction of the tube *longitudinal* axis and the height, as set forth in feature (v) of claim 1.

Such an arrangement can be seen, by way of example, in Figures 2 and 3 of the present application, where the distance between the first flat face and the second flat face of the vortex generator rows in the direction of the tube longitudinal axis is labeled "a". The ratio of feature (v) of claim 1 is the ratio of "a" to the height of the vortex generators, which is referred to in the specification and drawings as "h".

Since, none of the references, taken either individually or in fair combination, teaches or suggests the claimed ratio of "a" to "h" in feature (v) of claim 1, Applicants submit that the outstanding rejection of claim 1 under 35 U.S.C. §103(a) is improper and ought to be withdrawn.

Where an independent claim is nonobvious under §103, then any claim depending therefrom is also nonobvious. *In re Fine*, 5 USPQ2d 1596 (Fed. Cir. 1988). See MPEP §2143.03. Thus, Applicants submit that claims 2-5, 7, 8, 10-12 and 14-21, which depend directly or indirectly independent claim 1, are also non-obvious.

In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of this rejection under §103.

Newly Added Claims


In this response, Applicants present new dependent claims 22 and 23 for consideration. Applicants note that the PTO has not previously considered the distance between adjacent vortex generator rows set forth in claim 22 or the combination of distance between vortex generator rows and offset angle recited in claim 23. Applicants respectfully request consideration of these newly added claims on the merits.

CONCLUSION

In view of the foregoing remarks, Applicants respectfully submit that all of the pending claims are now in condition for allowance. An early notice to this effect is earnestly solicited. If, for any reason, the PTO does not find the application to be in condition for allowance, Applicants respectfully request that the Examiner contact the undersigned to schedule an interview.

Respectfully submitted,

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